

4-INS-905



## INSTALLATION, OPERATION AND CARE MANUAL

REMEMBER TO COMPLETE THE ONLINE WARRANTY REGISTRATION TO RECEIVE YOUR FULL TWO YEAR WARRANTY.

### WARRANTY

All Scientific equipment comes with a standard ONE year warranty, The 1 Year Extended Warranty is only valid for customers who have registered their warranty online at [www.scientific.co.za](http://www.scientific.co.za) within the first year after making their purchase.

MANUFACTURED  
IN SOUTH AFRICA



[www.scientific.co.za](http://www.scientific.co.za)

**REGISTER ONLINE TODAY**

- o Register your warranty on-line at [www.scientific.co.za](http://www.scientific.co.za) today and learn how to get the best out of your Scientific product.

**NO WEB ACCESS?**

- o If you do not have access to the Web, register by completing this form and Email it to the Scientific head office in South Africa. Email: [sales@scientific.co.za](mailto:sales@scientific.co.za)

**ONLY COMPLETE IF YOU DO NOT HAVE WEB ACCESS**

Company \_\_\_\_\_

Name \_\_\_\_\_

Surname \_\_\_\_\_

Telephone \_\_\_\_\_

Cellphone \_\_\_\_\_

Email Address \_\_\_\_\_

Country \_\_\_\_\_

Postal address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Scientific products purchased \_\_\_\_\_

Product Code (see box label) \_\_\_\_\_

Serial number (see back of machine) \_\_\_\_\_

**INTENDED USE**

- |                                       |  |   |
|---------------------------------------|--|---|
| <input type="checkbox"/> Agriculture  | <input type="checkbox"/> Genetics        | <input type="checkbox"/> Pharmaceutical Physics |
| <input type="checkbox"/> Automotive   | <input type="checkbox"/> Industrial      | <input type="checkbox"/> Power Generation       |
| <input type="checkbox"/> Biochemistry | <input type="checkbox"/> Medical         | <input type="checkbox"/> Special Metals         |
| <input type="checkbox"/> Botony       | <input type="checkbox"/> Microbiology    | <input type="checkbox"/> Sugar                  |
| <input type="checkbox"/> Chemistry    | <input type="checkbox"/> Mining          | <input type="checkbox"/> Water                  |
| <input type="checkbox"/> Cosmetics    | <input type="checkbox"/> Nuclear         | <input type="checkbox"/> Zoology                |
| <input type="checkbox"/> Electronics  | <input type="checkbox"/> Paper/Packaging | <input type="checkbox"/> Other (Specify): _____ |
| <input type="checkbox"/> Food         | <input type="checkbox"/> Petrochemical   | _____   |



ALL SCIENTIFIC EQUIPMENT COMES WITH A TWO YEAR WARRANTY ON COMPONENTS AND DEFECTIVE WORKMANSHIP - Ts & Cs APPLY.



## FURNACE

### LIMITED WARRANTY

The manufacturer guarantees that this unit is free from defect in materials and workmanship when it leaves the factory and undertakes to replace or repair the unit if it proves defective in normal use or during servicing for a period of 1(one) year from the date of original installation and is for the benefit of the original purchaser only. The liability under this warranty is limited to repairing the defective unit or any part of the unit provided it is sent carriage paid to an authorized dealer. All other Warranties ,expressed or implied , statutory or otherwise, including without limitations any implied Warranty of Merchantability or fitness for purpose are excluded .The Seller shall in no event be liable for direct,indirect or consequential damages in connection with the products.

This unit is at all times to be used according to the instruction manual and for its normal purpose.

This Warranty is not effective if damage occurs because of accident, carelessness,improper installation,lack of proper set-up,supervision when required or if the equipment is installed or operated in any manner contrary to the installation and operating instructions. In these cases,repairs will be made at a reasonable cost. Work performed by unauthorized personnel or unauthorized service agencies voids this Warranty.



**INSTALLATION OPERATION AND CARE OF  
FURNACES  
MODELS: 905/908/ 916**

## UNPACKING

Unpack the product and check for any damage incurred during transit. This should be reported to the responsible carrier, railway or postal authority, and a request for a damage report should be made.



THESE INSTRUCTIONS MUST BE FOLLOWED FOR US TO GUARANTEE OUR FULL SUPPORT OF YOUR CLAIM FOR PROTECTING AGAINST LOSS FROM CONCEALED DAMAGE. THE FORM FOR FILING SUCH A CLAIM WILL BE PROVIDED BY THE CARRIER.

## PRODUCT DESCRIPTION

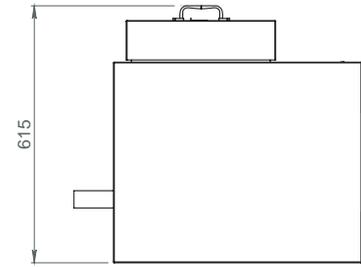
The unit is a bench top Chamber Furnace and can be used for a wide range of applications and in many sectors of industry and research. The unit is constructed with mild steel, coated with a textured powder coated finish. Double wall construction ensures a cool outer case.

The unit features an easily removable control panel including the solid state electrical components for easy on site maintenance.

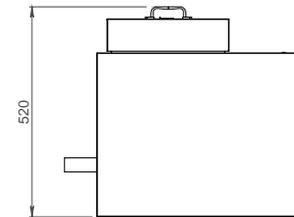
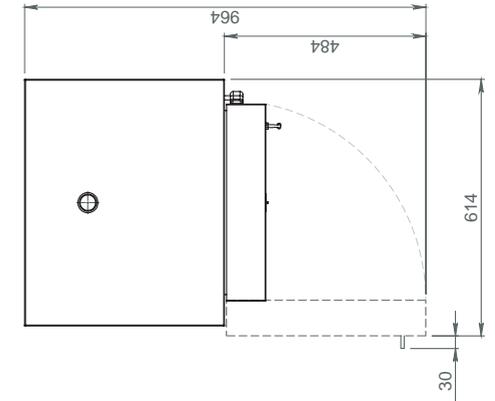
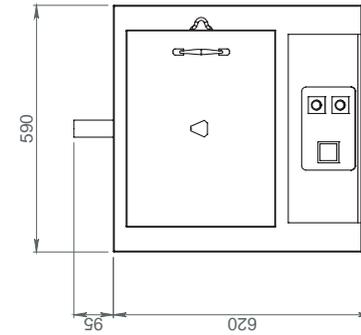
Hard wearing refractories around the chamber entrance and in the chamber base provide excellent resistance to everyday wear and tear whilst secondary low thermal mass insulation ensures maximum thermal efficiency.

Safety is ensured by the use of a factory preset solid state safety controller operating on an independent circuit.

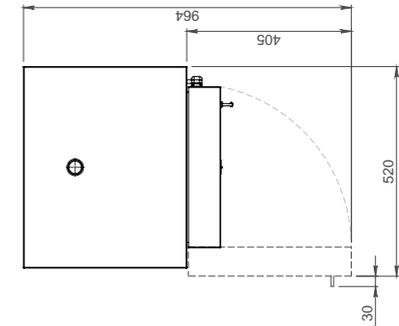
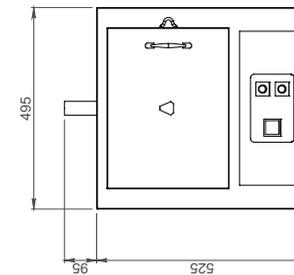
Chamber size is 5, 8 and 16 Liters with maximum temperatures of 1000 °C.



**LINE DIAGRAM  
MODEL: 8L/16L FURNACE  
MODEL CODE: 908/916**



**LINE DIAGRAM  
MODEL: 5L FURNACE  
MODEL CODE: 905**



## ELECTRICAL AND TECHNICAL INFORMATION

MODEL	DESCRIPTION	VOLTS (V/Hz)	POWER (WATTS)	MAX TEMP. °C	CHAMBER SIZE (mm)
905	5L VOLATILE FURNACE	230/50	3500	1010	200x100x240
908	8L ASHING FURNACE	230/50	3500	1000	170x100x450
916	16L ECONOMY FURNACE	230/50	3300	1000	300x185x300



THE CONTROL COMPARTMENT OF THIS UNIT CONTAINS DANGEROUS VOLTAGES. MAINTENANCE AND SERVICING REQUIRING THE REMOVAL OF ANY PANELS OR COVERS SHOULD BE DONE BY QUALIFIED SERVICE PERSONNEL ONLY.



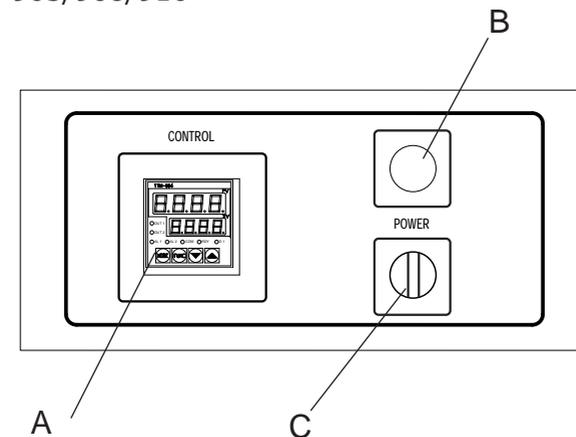
IT IS ESSENTIAL TO MAKE SURE THAT THE INCOMING VOLTAGE IS THE SAME AS THE RATED VOLTAGE OF THE OF THE UNIT AS FOUND ON THE SERIAL PLATE. THE SERIAL PLATE IS LOCATED AT THE REAR OF THE UNIT ADJACENT TO THE INCOMING CABLE ENTRY.

## GENERAL INSTALLATION AND OPERATION INFORMATION

1. Position the unit on stable bench
2. Place the in a well-ventilated room, away from other sources of heat, and on a surface which is resistant to accidental spillage hot materials. Do not mount the furnace on an inflammable surface.
3. Ensure that the unit is at least 100mm-200mm from the wall to ensure that the exhaust air duct on the rear of the unit can vent adequately.
4. Ensure that there is free space around the furnace. Do not obstruct any of the vents in the control section: they are needed to keep the controls cool.
5. Ensure that the furnace is placed in such a way that it can be quickly switched off or disconnected from the electrical supply-see below.
6. If the furnace is to be used to heat substances which emit fumes, then a fume extraction duct of about 150mm inlet diameter may be place directly above the chimney outlet.

## SPECIFIC INSTALLATION AND OPERATING INFORMATION

MODELS 905/908/916



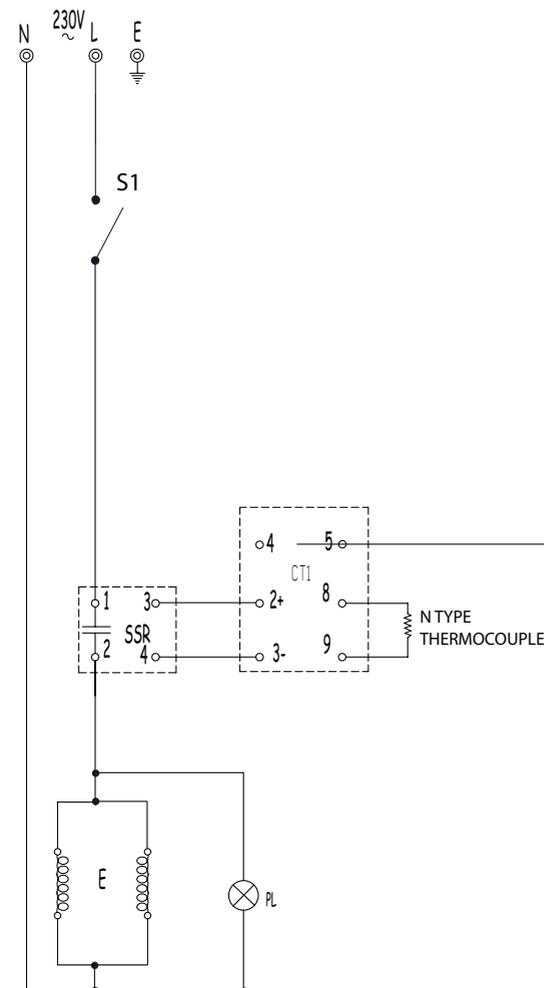
1. Ensure that the power plug of the unit is plugged into the mains power socket.
2. Ensure that the furnace door is closed.
3. Turn the power switch "C" from '0' to '1'.
4. The digital temperature controller 'A' will illuminate.
5. Set the desired control temperature via the temperature controller A. See details below
6. Control pilot lamp 'B' will illuminate when elements are energised.

### OPERATING INSTRUCTIONS OF ELECTRONIC TEMPERATURE CONTROLLER

1. The temperature controller has four buttons on the front face. These are used to set the required temperature, initiate AutoTuning, and enter any adjustments to the program.
2. To set the required temperature, ensure that the unit is connected and switched "ON" in the appropriate manner.
3. The top display (white) shows the actual temperature (PV) in the unit, the bottom display (green) is the setting temperature (SV) and must be adjusted to the required temperature. To adjust the setting, press the button 'F'. This action will start one of the digits in the lower display flashing. By touching this button again, the flashing will move to the left. Once the flashing red display is on the number that needs to change, use the UP/DOWN buttons to attain the required settings.
4. By moving the flashing digit left the desired temperature required can be set. Once the correct temperature has been entered, press 'M' to enter the setting.

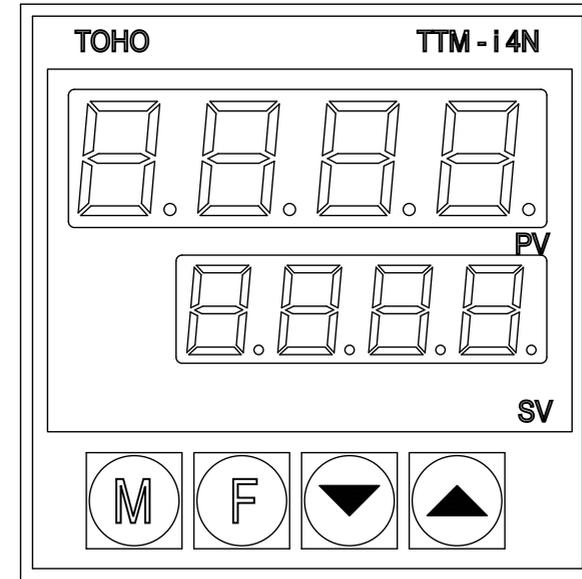
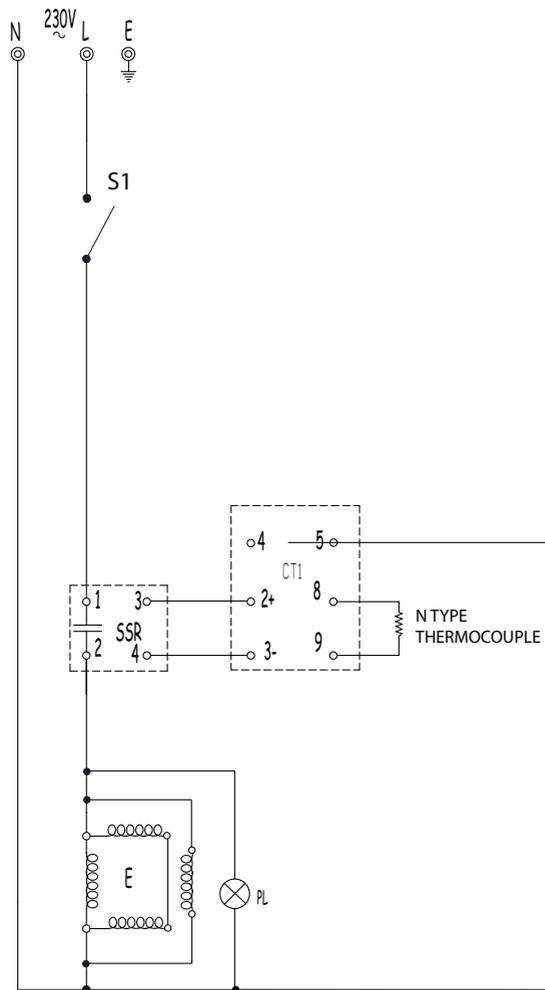
### WIRING DIAGRAM MODEL: 9L FURNACE MODEL CODE: 908/916

LEGEND	DESCRIPTION	PART NUMBER
CT	CONTROLLER	1-DC-TMI4N
SSR	SOLID STATE RELAY	1-SSR-40A
E	ELEMENT 3500W/3300W/230V	
S1	SWITCH	
PL	PILOT LAMP	



**WIRING DIAGRAM**  
**MODEL: 9L FURNACE**  
**MODEL CODE: 905**

LEGEND	DESCRIPTION	PART NUMBER
CT	CONTROLLER	1-DC-TMI4N
SSR	SOLID STATE RELAY	1-SSR-40A
E	ELEMENT 3300W/230V	5-3300W-905
S1	SWITCH	
PL	PILOT LAMP	



**GENERAL OPERATING GUIDELINES**

1. The life of the heating elements is shortened by the continuous use at temperature close to maximum. Do not leave the furnace at high temperature when not required.
2. When heating materials which produce smoke or fumes, chimney must be unobstructed. Otherwise, soot accumulates in chamber and could possibly cause an electrical breakdown of the heating elements.
3. If the maximum is used to heat materials, which emit smoke or fumes, regularly heat it up to maximum temperature for one hour without load to burn away the soot.
4. Materials such as case hardening compounds and other reactive salts may penetrate the furnace chamber lining and reduce the life of the liner. Use of a hearth tile may be advisable.



## WARNING

### Burn Hazard.

Do not touch hot, liquid or heating surfaces while equipment is heating or operating

Hot surfaces and liquid can burn skin. Allow the hot surfaces to cool before handling

## CLEANING

BEFORE CLEANING THE UNIT, DISCONNECT THE POWER PLUG FROM THE MAINS SOCKET!

- Clean the outside of the unit using a damp cloth with soapy water.
- Soot deposits may form inside the furnace, at appropriate intervals remove these by heating the unit up to maximum temperature for one hour without load
- Under no circumstances should steel wool be used.
- Do not clean with organic solvents.
- It is normal for the stainless steel flange to adapt a slightly yellow discolouration when exposed to continuous high temperature.



CLEAN THE STAINLESS STEEL PARTS WITH WATER AND SOAP. AVOID THE USE OF DETERGENTS CONTAINING ABRASIVE SUBSTANCES. ALWAYS RINSE WELL AND DRY CAREFULLY AFTER CLEANING. DO NOT USE PRODUCTS CONTAINING AGGRESSIVE CHEMICALS, ACIDS OR PRODUCTS WITH CHLORINE TO CLEAN THE STAINLESS STEEL EVEN IF DILUTED



## WARNING

### Electric Shock Hazard.

Keep water and other liquids from entering the inside of the equipment. Liquid inside the equipment could cause an electrical shock

Do not spray water or cleaning products. Liquid could contact the electrical components and cause a short circuit or an electrical shock. Do not use equipment if power cord is damaged or has been modified

## SAFETY

**READ ALL INSTRUCTIONS BEFORE USE. FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN INJURY TO YOURSELF AND OTHERS**

1. Use the furnace incubator on an individual 15A mains outlet only. **DO NOT OVERLOAD THE CIRCUIT.**
2. Ensure that the equipment and the power supply cord does not come into contact with hot surfaces.
3. This unit is only to be used by properly trained laboratory staff.
4. If the supply cord is damaged, it must be replaced with a new cord assembly available from the suppliers agent.
5. Use only earthed outlets matching the serial plate voltage.
6. Have equipment installed by a qualified personnel in accordance with local codes and ordinances.
7. Use equipment in a flat level position.
8. Do not operate if equipment has been damaged or is malfunctioning in any way.
9. These units are designed to run only on alternating current (A.C.) **DO NOT CONNECT TO DIRECT CURRENT (D.C)**

## SAFETY RECOMMENDATIONS

1. Avoid burns: furnace surfaces can be hot. Before removing a hot object from the furnace make sure there is a suitable storage place available for the object.
2. When opening the door of the unit, stand a distance away for the fumes to escape which may be harmful.